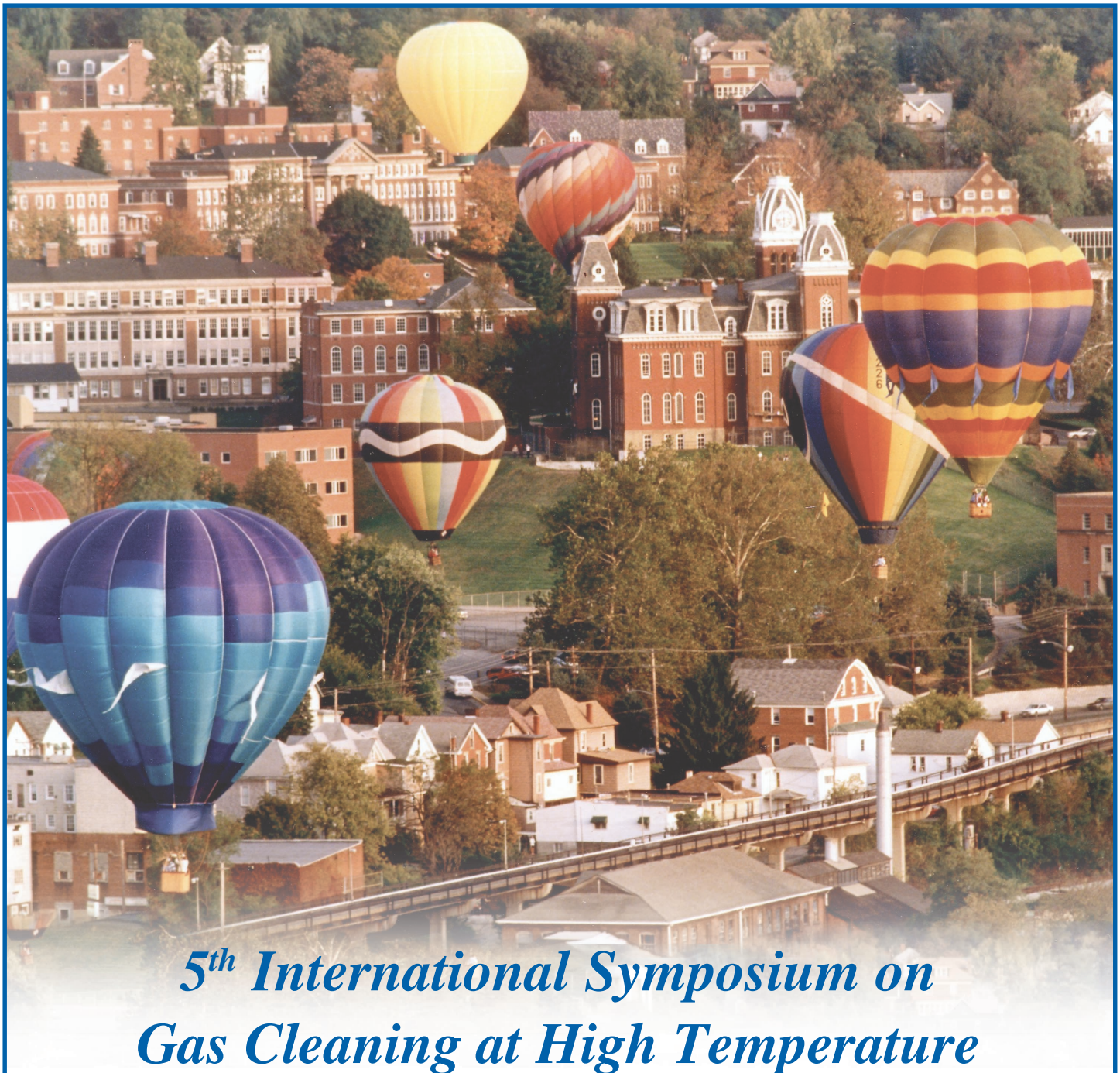


5th International Symposium on Gas Cleaning at High Temperature

Final Agenda

September 17-20, 2002
Morgantown, West Virginia, USA

U.S. Department of Energy

National Energy Technology Laboratory

National Research Center for Coal and Energy

At a Glance

Tuesday, September 17, 2002

6:00 - 8:00 p.m. Pre-Registration and Reception; Poster Setup for Sessions 1 and 2

Wednesday, September 18

7:00 a.m.
Registration and Continental Breakfast

8:00 a.m.
Introduction and Plenary Session

12:15 p.m.
Lunch

1:30 p.m.
Session 1. Particulate Cleanup Applications

3:05 p.m.
Session 2. Bed Filters and Safe Guard Devices

4:00 p.m.
Poster Review

5:30 p.m.
Poster Setup for Sessions 3, 4, 5, and 6

6:30 p.m.
Reception at the West Virginia University Erickson Alumni Center

Thursday, September 19

7:30 a.m.
Continental Breakfast and Welcome Back

8:30 a.m.
Session 3. Particulate Cleanup Fundamentals

10:10 a.m.
Session 4. Filter Materials and Performance

11:15 a.m.
Poster Review and Lunch

1:30 p.m.
Session 5. Catalytic Filters

2:45 p.m.
Session 6. Sorbent Development for H_2S Removal

4:00 p.m.
Poster Review

5:30 p.m.
Poster Setup for Sessions 7 and 8

7:00 p.m.
Social and Dinner at the Historic Clarion Hotel Morgan

Friday, September 20

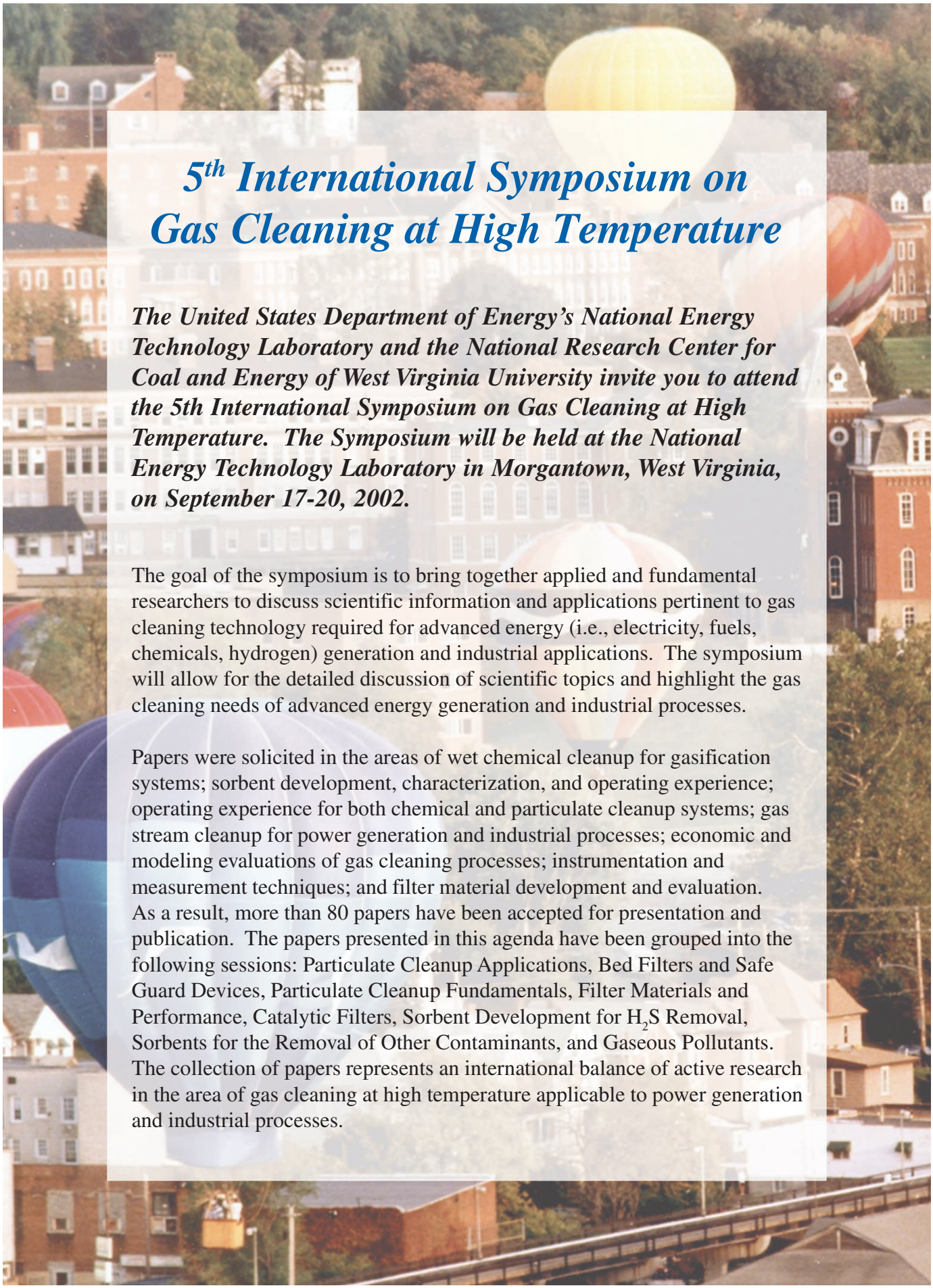
7:30 a.m.
Continental Breakfast and Welcome Back

8:30 a.m.
Session 7. Sorbents for Removal of Other Contaminants

10:00 a.m.
Session 8. Gaseous Pollutants

11:15 a.m.
Poster Review and Lunch

1:45 p.m.
Adjourn / Optional Tour of NETL



5th International Symposium on Gas Cleaning at High Temperature

The United States Department of Energy's National Energy Technology Laboratory and the National Research Center for Coal and Energy of West Virginia University invite you to attend the 5th International Symposium on Gas Cleaning at High Temperature. The Symposium will be held at the National Energy Technology Laboratory in Morgantown, West Virginia, on September 17-20, 2002.

The goal of the symposium is to bring together applied and fundamental researchers to discuss scientific information and applications pertinent to gas cleaning technology required for advanced energy (i.e., electricity, fuels, chemicals, hydrogen) generation and industrial applications. The symposium will allow for the detailed discussion of scientific topics and highlight the gas cleaning needs of advanced energy generation and industrial processes.

Papers were solicited in the areas of wet chemical cleanup for gasification systems; sorbent development, characterization, and operating experience; operating experience for both chemical and particulate cleanup systems; gas stream cleanup for power generation and industrial processes; economic and modeling evaluations of gas cleaning processes; instrumentation and measurement techniques; and filter material development and evaluation. As a result, more than 80 papers have been accepted for presentation and publication. The papers presented in this agenda have been grouped into the following sessions: Particulate Cleanup Applications, Bed Filters and Safe Guard Devices, Particulate Cleanup Fundamentals, Filter Materials and Performance, Catalytic Filters, Sorbent Development for H_2S Removal, Sorbents for the Removal of Other Contaminants, and Gaseous Pollutants. The collection of papers represents an international balance of active research in the area of gas cleaning at high temperature applicable to power generation and industrial processes.

Program Committee

Javad Abbasian, Institute of Gas Technology, USA

Richard Bajura, WVU National Research Center for Coal and Energy, USA (Co-chair)

Carl Bauer, National Energy Technology Laboratory, USA

Dave Berry, National Energy Technology Laboratory, USA

Vann Bush, Southern Research Institute, USA

Richard Dennis, National Energy Technology Laboratory, USA (Co-chair)

Martin Ferer, West Virginia University, USA

Santosh Gangwal, Research Triangle Institute, USA

Raghubir Gupta, Research Triangle Institute, USA

Gunnar Hemmer, University of Karlsruhe, Germany

Howard Hendrix, Southern Company Services, USA

Neville Holt, EPRI, USA

John Hurley, Energy & Environmental Research Center, USA

Juhani Issakson, Kvaerner Pulping, Finland

Suresh Jain, National Energy Technology Laboratory, USA

Sven Jansson, ABB, Sweden (Retired)

Roddie Judkins, Oak Ridge National Laboratory, USA

Hidehira Kamiya, Tokyo University, Japan

Chikao Kanaoka, Kanazawa University, Japan

Gerhard Kasper, University of Karlsruhe, Germany

Thomas Lippert, Siemens Westinghouse Power Corporation, USA

Mario Marocco, American Electric Power, USA

Theodore McMahon, National Energy Technology Laboratory, USA

John Sawyer, Pall Corporation, USA

George Schaub, University of Karlsruhe, Germany

Eberhard Schmidt, Bergische University, Germany

Jonathan Seville, University of Birmingham, UK

Ranjani Siriwardane, National Energy Technology Laboratory, USA

Astrid Walch, USF Schumacher, Germany

Symposium Overview

Plenary Session

As markets and environmental concerns change so does the direction and emphasis on gas cleaning for power generation and industrial processes. The objective of the plenary session will be to provide the symposium attendees with a perspective of the gas cleaning needs for power generation and industrial processes in the 21st century. The plenary session will include representatives from a U.S. electric utility, the gasification and gas cleaning industries, and the U.S. Environmental Protection Agency. Speaker names are published on our homepage at www.netl.doe.gov under Events.

Technical Sessions

Technical Sessions 1 through 8 will be conducted in a format similar to previous meetings of this group. The objective of the technical sessions is to provide a summary of the work in an effort to attract the interest of those who will seek more detailed information during the poster sessions. Each presenter will have 5 minutes to highlight the objective, approach, and conclusions of his/her work. There will be no open discussion during this time.

Poster Sessions

Following two consecutive technical sessions of oral presentations, a poster session will be held for open discussion. Each presenter will have a poster display of his/her presentation topic providing the technical details of their work. Ample time will be available during these reviews for technical discussion and individual interaction.

Program Committee Membership

The Program Committee welcomes new membership. Please contact Richard Dennis at richard.dennis@netl.doe.gov or 304-285-4515 if you would like to become an active member of the program committee.

The city of Morgantown, the rail trail by the Monongahela River, the night glow at the Annual Balloon Festival.

Agenda

Tuesday, September 17, 2002

6:00-8:00 p.m. ***Pre-Registration and Reception; Poster Setup for Sessions 1 and 2***

Wednesday, September 18, 2002

7:00 a.m. ***Registration/Continental Breakfast***

8:00 a.m. ***Welcome and Introduction***

Representatives from U.S. DOE's National Energy Technology Laboratory and West Virginia University

8:50 a.m. **Plenary Session**

12:15 p.m. ***Lunch***

Session 1. Particulate Cleanup Applications

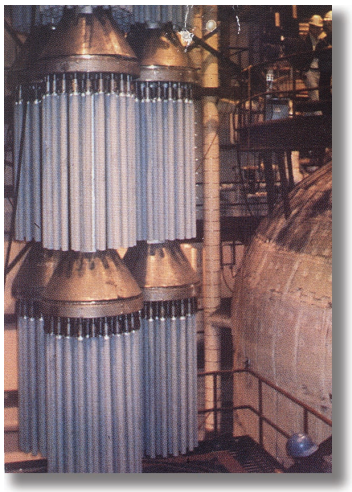
Session Chairs: Howard Hendrix, Southern Company Services, USA
Juhani Issakson, Kvaerner Pulping, Finland

1:30 p.m. ***Dry Gas Filtration Experience on a Ferro Alloy Blast Furnace***
Mikropul France SAS, France

High Temperature Flue Gas Cleaning System for 15 Mwe PFBC-CC Station in China
University of Petroleum, P. R. China

Hot Gas Filter for MSW Incineration Plant
Takuma Company, Ltd., Japan

Hot-Gas Filter Testing with a Transport Reactor Gasifier
University of North Dakota, USA



Large scale testing of the Siemens Westinghouse hot gas filter system was successfully performed at the Tidd PFBC Demonstration Facility.

Power Systems Development Facility: High-Temperature, High-Pressure Filtration in Gasification Operation
Southern Company Services, Inc., USA

Hot Gas Particulate Cleaning Technology Applied for PFBC / IGCC Condition — Ceramic Tube Filter (CTF) and Metal Filter
Electric Power Development Co., LTD., Japan

Development and Testing of Moving Granular Bed Filter in Taiwan Industrial Technology Research Institute
Energy & Resources Laboratories, Industrial Technology Research Institute, Taiwan

SCHUMACHER Hot Gas Filter Long-Term Operating Experience in the NUON POWER Buggenum IGCC Power Plant
USF Schumacher Umwelt-und, Germany

Operational Data on High Temperature Gas-Solid Particulate Filtration
Procedyne Corporation, USA

Operation Behavior of a Multi-Candle Filter with Coupled Pressure Pulse Recleaning during Normal Operation and in the Case of a Filter Candle Failure
Forschungszentrum Karlsruhe GmbH, Institut fur Technische Chemie, Germany

Experiences of the Application of Hot Gas Filtration to Industrial Processes
Tenmat Limited, United Kingdom

Pulse Jet Cleaning System Retrofit Achieves Low Emission Levels In High-Temperature Abrasive Industrial Application
Goyen Valve Corporation, USA

Gas Cleaning in Pressurized Pulverized Coal Combustion (PPCC) Applications: Process, Status, and Perspectives
University of Duesseldorf, Germany

Agenda

Wednesday, September 18, 2002

Session 2. Bed Filters and Safe Guard Devices

Session Chairs: John Hurley, Energy & Environmental Reseach Center, USA
Chikao Kanaoka, Kanazawa University, Japan

3:05 p.m. ***Preparation of Metal Filter Element for Fail Safety in IGCC Filter Unit***
Gyoungsang National University, Korea

A Reliable New Check Valve for Harsh Gas Processing Applications
Southern Research Institute, USA

The Flow Patterns and Stresses on the Wall in the Symmetric Louvered-Wall Moving Granular Filter Bed
National Pingtung University of Science and Technology, Pingtung, Taiwan

Improving Efficiency of a Counter-Current Flow Moving Bed Granular Filter
Iowa State University, USA

Ceramic Hot Gas Filter with Integrated Failsafe System
USF Schumacher Umwelt-und, Germany

Development of a Candle Filter Failure Safeguard Device
Siemens Westinghouse Power Corporation, USA

Estimation of Collection Efficiency Change of Moving Granular Bed Filter by Dust Load
Kanazawa University, Japan

The Experimental Study on the Moving Granular Bed Filter for Hot Gas Cleanup in IGCC System
Thermal Power Research Institute of State Power Corporation of China, P.R. China

A Simple Candle Filter Safeguard Device
Energy & Environmental Research Center, USA

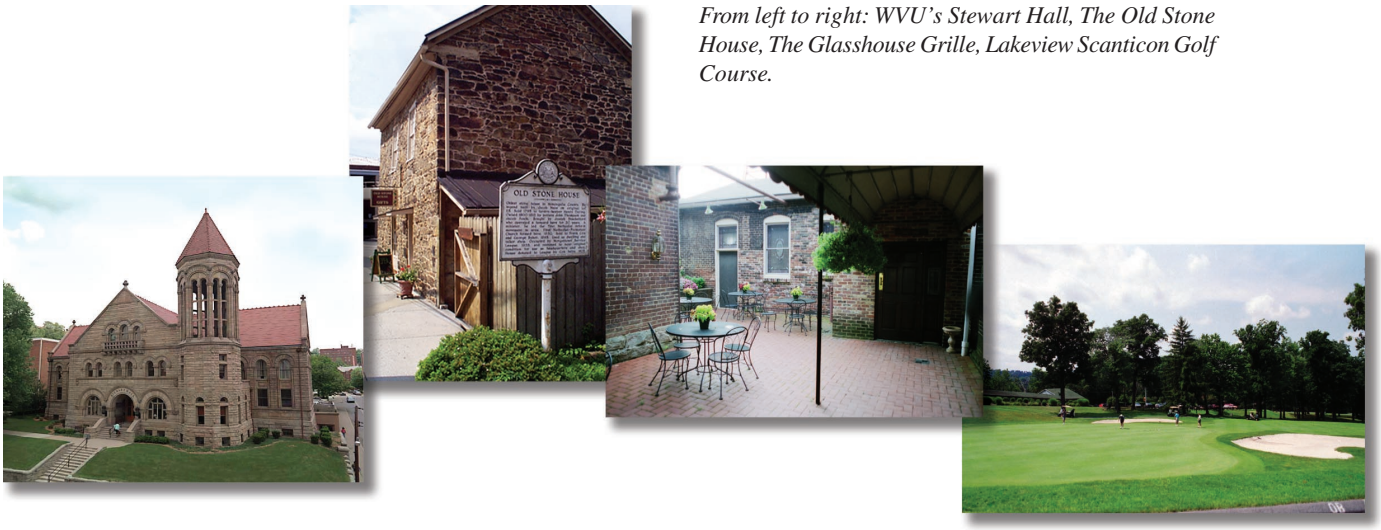
Novel Backup Filter Device for Candle Filters
CeraMem Corporation, USA

Southern Research Institute has developed a novel mechanical safe guard device designed to shut off the flow of particles past a broken filter.

4:00 p.m. ***Poster Review***

5:30 p.m. ***Poster Setup for Sessions 3, 4, 5, and 6***

6:30 p.m. ***Reception at the West Virginia University Erickson Alumni Center***



From left to right: WVU's Stewart Hall, The Old Stone House, The Glasshouse Grille, Lakeview Scanticon Golf Course.

Agenda

Thursday, September 19, 2002

7:30 a.m. *Continental Breakfast*

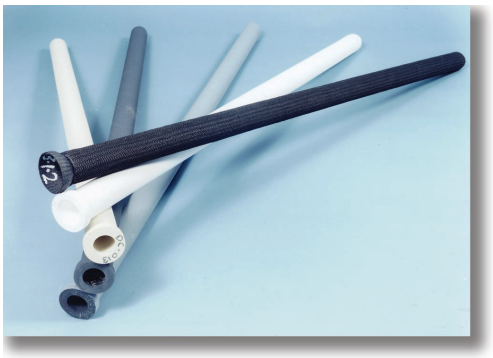
8:15 a.m. *Welcome Back*

Session 3. Particulate Cleanup Fundamentals

Session Chairs: Gerhard Kasper, University of Karsruhe, Germany
Van Bush, Southern Research Institute, USA

8:30 a.m. ***Flow Characteristics of Pulse Cleaning System in Ceramic Filter Candle***
University of Petroleum, P.R. China

Development and Behavior of Metallic Filter Element and Numerical Simulation of Transport Phenomena during Filter Regeneration Process
Central Iron & Steel Research Institute / AT&M Corporation, P.R. China



Numerous types of candle filters, including monolithic ceramics, ceramic composites, sintered powder metal, and wire mesh metal filters, are available for use in hot gas filter systems.

Transient Regeneration in the Patchy Cleaning of Rigid Gas Filters — Comparison of Modeling to Experiment
West Virginia University, USA

Measurement of Local Frequencies of Filter Regeneration and Their Effect on Successive Operating Cycles
Universitat Karlsruhe, Germany

Predicting the Operating Behavior of Ceramic Filters from Thermo-Mechanical Ash Properties
Universitat Karlsruhe, Germany

Use of Laboratory Drag Measurements in Evaluating Hot-Gas Filtration of Char from the Transport Gasifier at the Power Systems Development Facility
Southern Research Institute, USA

Online Particle Size and Concentration Measurement in a Pressurized Coal Combustion Process
Universitat Karlsruhe, Germany

Modifying Char Dustcake Pressure Drop Using Particulate Additives
Southern Research Institute, USA

Analysis of Pulse-Jet Cleaning of Dustcake from Ceramic Filter Element
Kanazawa University, Japan

Development of Simulation System for Hot Gas Filtration by Ceramic Candle Filters on High Temperature and/or High Pressure Conditions
Korea Institute of Energy Research, Republic of Korea

Analysis of High Temperature Adhesion Behavior of Fly Ash from Coal and RDF Combustion by Using FE-SEM with Heat Treatment Unit
Tokyo University of Agriculture & Technology, Japan

A High Temperature Test Facility for Studying Ash Particle Distribution Characteristics of a Candle Filter During Surface Regeneration
West Virginia University, USA

A Study on Ash Particle Distribution Characteristics of Candle Filter Surface Regeneration at Room Temperature
West Virginia University, USA

Computer Modeling of Flow, Thermal Condition and Ash Deposition in a Hot-Gas Filtration Device
Clarkson University, USA

Experimental Measurements of the Permeability of Ceramic Barrier Filters Used in Conjunction With a Fast Network Flow Model to Calculate the Gas Flows in Hot Gas Filters
U.S. DOE, National Energy Technology Laboratory, USA

Agenda

Thursday, September 19, 2002

Session 4. Filter Materials and Performance

Session Chairs: Mary Ann Alvin, Siemens-Westinghouse, USA; Astrid Walch, USF Schumacher, Germany

10:10 a.m. ***Assessment of Metal Media Filters for Advanced Coal-Based Power Generation Applications***
Siemens Westinghouse Power Corporation, USA

Examinations of Chemical Resistance and Thermal Behavior of Ceramic Filter Materials for Hot-Gas Cleaning
TU Bergakademie Freiberg, Germany

The Prospects for the Use of Mineral Staple and Continuous Fibers for Gas Cleaning at High Temperatures
BEIM, Ukraine

Characterization of Field-Exposed Iron Aluminide Hot Gas Filters
Oak Ridge National Laboratory, USA

Characterization of Filter Elements for Service in a Coal Gasification Environment
Southern Research Institute, USA

Vibrational Behaviour of Ceramic Hot Gas Filter Elements: Analysis and Characterisation of Mechanical Properties
Fraunhofer-Institut fur Werkstoffmechanik, Germany

Evaluation of Mechanical Properties and Structural Changes of Ceramic Filter Materials for Hot Gas Cleaning under Simulated Process Conditions
Fraunhofer-Institut fur Werkstoffmechanik, Germany

Nondestructive Evaluation of Stiffness and Stresses of Ceramic Candle Filters at Elevated Temperature under Vibrational Environment
West Virginia University, USA

Microstructure and Fracture of Some SiC-Based Clay Bonded Hot Gas Filter Materials After Exposure to Thermal Cycling and/or High Temperature Water Vapour
Tampere University of Technology, Finland

Development of Metallic Filters for Hot Gas Cleanup in Pressurized Fluidized Bed Combustion Applications
Ames Laboratory, Iowa State University, USA

Automated Nondestructive Evaluation Method for Characterizing Rigid Ceramic and Metallic Media Hot Gas Filters
Argonne National Laboratory, USA

11:15 a.m. ***Poster Review and Lunch***

Session 5. Catalytic Filters

Session Chairs: Georg Schaub, University of Karsruhe, Germany
David Berry, National Energy Technology Laboratory, USA

1:30 p.m. ***New Technology for Simultaneous Removal of Gaseous and Particulate Components from Hot Exhaust Streams***
A.V. Luikov Heat and Mass Transfer Institute, Belarus

Reduction of Ammonia and Tar in Pressurized Biomass Gasification
Lund University, Sweden

Improvement of Sulphur Resistance of a Nickel-Modified Catalytic Filter for Tar Removal from Biomass Gasification Gas
Vrije Universiteit, Belgium

Agenda

Thursday, September 19, 2002

Session 5. Catalytic Filters (Continued)

1:30 p.m.

Carbon Particulate Filtration and Catalytic Abatement from Stationary Industrial Sources
Dipartimento di Scienza dei Materiali ed Ingegneria, Italy

Catalysis of Reduction and Oxidation Reactions for Application in Gas Particle Filters
Engler-Bunte Institut, Universitat Karlsruhe, Germany

Catalytic Cracking of Gaseous Heavy Hydrocarbons by Ceramic Filters
USF Schumacher Umwelt-und, Germany

Experimental and Numerical Investigations on Flue Gas Purification During Hot Gas Filtration
Aachen University of Technology, Germany

Simultaneous Removal of Particulates and NO_x Using Catalyst Impregnated Fibrous Ceramic Filters
Ajou University, Korea

Session 6. Sorbent Development for H_2S Removal

Session Chairs: Ranjani Siriwardane, National Energy Technology Laboratory, USA;
Javad Abbasian, Illinois Institute of Technology, USA

2:45 p.m.

Stability of Sulfur Capacity Attributed to Zinc Sulfidation on Sorbent Containing Zinc Ferrite - Silica Composite Powder in Pressurized Coal Gas
CRIEPI, Japan

Highly Attrition Resistant Zinc Oxide-Based Sorbents for H_2S Removal by Spray Drying Technique
Korea Electric Power Research Institute, Korea

Continuous Operation of Spray-Dried Zinc Based Sorbent in a Hot Gas Desulfurization Process Consisting of a Transport Desulfurizer and a Fluidized Regenerator
Korea Institute of Energy Research, Korea

RVS-1 regenerable hot/warm gas desulfurization sorbent is available commercially.

Regeneration and Durability of Advanced Zinc Ferrite Sorbent for Hot Coal Gas Desulfurization
Central Research Institute of Electric Power Industry, Japan

A Reusable Calcium-Based Sorbent for Desulfurizing Hot Coal Gas
Iowa State University, USA

Durable Zinc Oxide-Based Regenerable Sorbents for Desulfurization of Syngas in a Fixed-Bed Reactor
U.S. DOE, National Energy Technology Laboratory, USA

Influence of Dust on High Temperature Desulfurization of Iron Oxide Sorbent
Institute of Coal Chemistry, Chinese Academy of Sciences, P.R. China

Mathematical Simulation of a Bench Scale BFB Reactor for Cleaning Synthesis Gas at High Temperature and Pressure
ETSEIB, Spain

Effect of Additive on Iron Oxide Sorbent in High-Temperature Coal Gas Desulfurization
Taiyuan University of Technology, P.R. China

New ZnO-Based Regenerable Sulfur Sorbents for Fluid-Bed/Transport Reactor Applications
Gas Technology Institute, USA

Testing of Regenerable Iron-Calcium Oxides Desulfurization Sorbents in a Fixed-Bed Reactor
Taiyuan University of Technology, P.R. China

4:00 p.m. ***Poster Review***

5:30 p.m. ***Poster Setup for Sessions 7 and 8***

7:00 p.m. ***Social and Dinner at the Historic Clarion Hotel Morgan***

Agenda

Friday, September 20, 2002

7:30 a.m. ***Continental Breakfast***

8:15 a.m. ***Welcome Back***

Session 7. Sorbents for Removal of Other Contaminants

Session Chairs: Raghubir Gupta, Research Triangle Institute, USA; Ron Schulz, University of Surrey, UK

8:30 a.m. ***Moisture Effects on the Phenanthrene Adsorption Capacity by Carbon Materials at High Temperature***
Instituto de Carboquimica, Spain

Three-Ring-Polycyclic Aromatic Hydrocarbons Removal from Waste Hot Gas by Sorbents: Influence of the Sorbent Characteristics
Instituto de Carboquimica, Spain

Studies of Alkali Sorption Kinetics for Pressurized Fluidized Bed Combustion by High Pressure Mass Spectrometry
Research Center Juelich, IWV-2, Germany

Thermodynamic Properties of Alkali Species in Coal Fired Combined Cycle Power Systems
Research Center Juelich, IWV-2, Germany

Acid Gas Removal by Customary Sorbents for Integrated Gasification Fuel Cell Systems
Fraunhofer UMSICHT, Germany

High Temperature Flue Gas Desulfurization in Moving Beds with Regenerable Copper Based Sorbents
Illinois Institute of Technology, USA

Sorbents for High Temperature Removal of Arsenic from Gasified Coal
TDA Research, Inc., USA

Mercury Sorbents for Flue Gas and Fuel Gas Applications
U.S. DOE, National Energy Technology Laboratory, USA

In Situ Gas Conditioning in Fuel Reforming for Hydrogen Generation
Center for Solar Energy and Hydrogen Research, ZSW, Germany

NETL's Gas Process Development Unit is sized to produce results scalable to commercial applications and offers a cost effective test site for transport and fluid-bed desulfurization reactor and sorbent development.

9:30 a.m. ***Break***

Session 8. Gaseous Pollutants

Session Chairs: Suresh Jain, National Energy Technology Laboratory, USA
Richard Newby, Siemens-Westinghouse, USA

10:00 a.m. ***Development of the Ultra-Clean Dry Cleanup Process for Coal-Based Syngases***
Siemens Westinghouse Power Corporation, USA

Development of a Novel Liquid Metal Based Fuel Gas Scrubbing System
Sheffield University, England

Removal of Particles and Acid Gases (SO_2 or HCl) with a Ceramic Filter by Addition of Dry Sorbents
Universitat Karlsruhe, Germany

Study of Separation Property of Heavy Metal Compounds by Hot Gas Cleaning System
Kanazawa University, Japan

Incineration of Waste Containing Chlorine: Catalytic Hot Flue Gas Cleaning with Total Oxidation Catalysts
University Complutense, Spain

Agenda

Friday, September 20, 2002

Session 8. Gaseous Pollutants (Continued)

10:00 a.m
Potential Application of High Temperature Gas Cleaning in Metallurgical Processes
MEFOS, Sweden

A Hybrid Gas Cleaning Process for Production of Ultraclean Syngas
RTI, USA

Design and Control of Hot-Gas Desulfurization Systems with High Oxygen Regenerator Feed Gas
Korea Institute of Energy Research, Korea

Electrochemical Membrane Separation of Hydrogen Sulfide from Coal Gasification Streams
Georgia Institute of Technology, USA

NETL's Gas Process Development Unit for Hot/Warm Gas Cleanup
U.S. DOE, National Energy Technology Laboratory, USA

11:15 a.m. ***Poster Review and Lunch***

1:45 p.m. ***Adjourn / Optional Tour of NETL***

Symposium Transportation

Complimentary bus transportation will be provided to transport attendees to and from all symposium events and hotels except the Lakeview Scanticon Resort & Conference Center. You will be responsible for making your own transportation arrangements from the airport to your hotel. The complimentary transportation schedule will be as follows:

Tuesday, September 17, 2002
- Pick up from Euro-Suites Hotel, Hampton Inn, Holiday Inn, and Clarion Hotel Morgan and transport to the National Energy Technology Laboratory (NETL) - 5:45 p.m.
- Pick up from NETL and transport to Hotels - 7:45 p.m.

Wednesday, September 18, 2002
- Pick up from Hotels and transport to NETL - 6:45 a.m.
- Pick up from NETL and transport to the WVU Erickson Alumni Center for the reception - 6:15 p.m.
- Pick up from the WVU Erickson Alumni Center and transport to Hotels - 8:30 p.m.

Thursday, September 19, 2002
- Pick up from Hotels and transport to NETL - 7:15 a.m.
- Pick up from NETL and transport to the Clarion Hotel Morgan for a social and dinner - 6:45 p.m.
- Pick up from the Clarion Hotel Morgan and transport to Hotels - 9:15 p.m.

Friday, September 20, 2002
- Pick up from Hotels and transport to NETL - 7:15 p.m.
- Pick up from NETL and transport to the Hotels and the Morgantown Airport - 1:45 and 3:30 p.m.

Venue and Lodging

The **5th International Symposium on Gas Cleaning at High Temperature** will be held at the ***U.S. Department of Energy's National Energy Technology Laboratory (NETL)***, located at 3610 Collins Ferry Road, Morgantown, West Virginia. Free symposium parking will be provided at NETL.

Lodging arrangements are the responsibility of the attendees. Room blocks have been reserved at the following hotels for symposium guests. You must make your reservation directly with the hotel and reference the **5th International Symposium** to receive the rates listed below. **All room blocks will be released on September 6, 2002.** Complimentary transportation will be provided to transport attendees to and from all symposium events and hotels except the Lakeview Scanticon Resort & Conference Center.

Euro-Suites Hotel
501 Chestnut Ridge Road
Morgantown, WV 26505
Telephone: 304-598-1000 / 1-800-678-4837
Fax: 304-599-2736
$75.00 Single / $85.00 Double

Hampton Inn
1053 Van Voorhis Road
Morgantown, WV 26505
Telephone: 304-599-1200 / 1-800-426-7866
Fax: 304-598-7331
$66.00 Single/Double

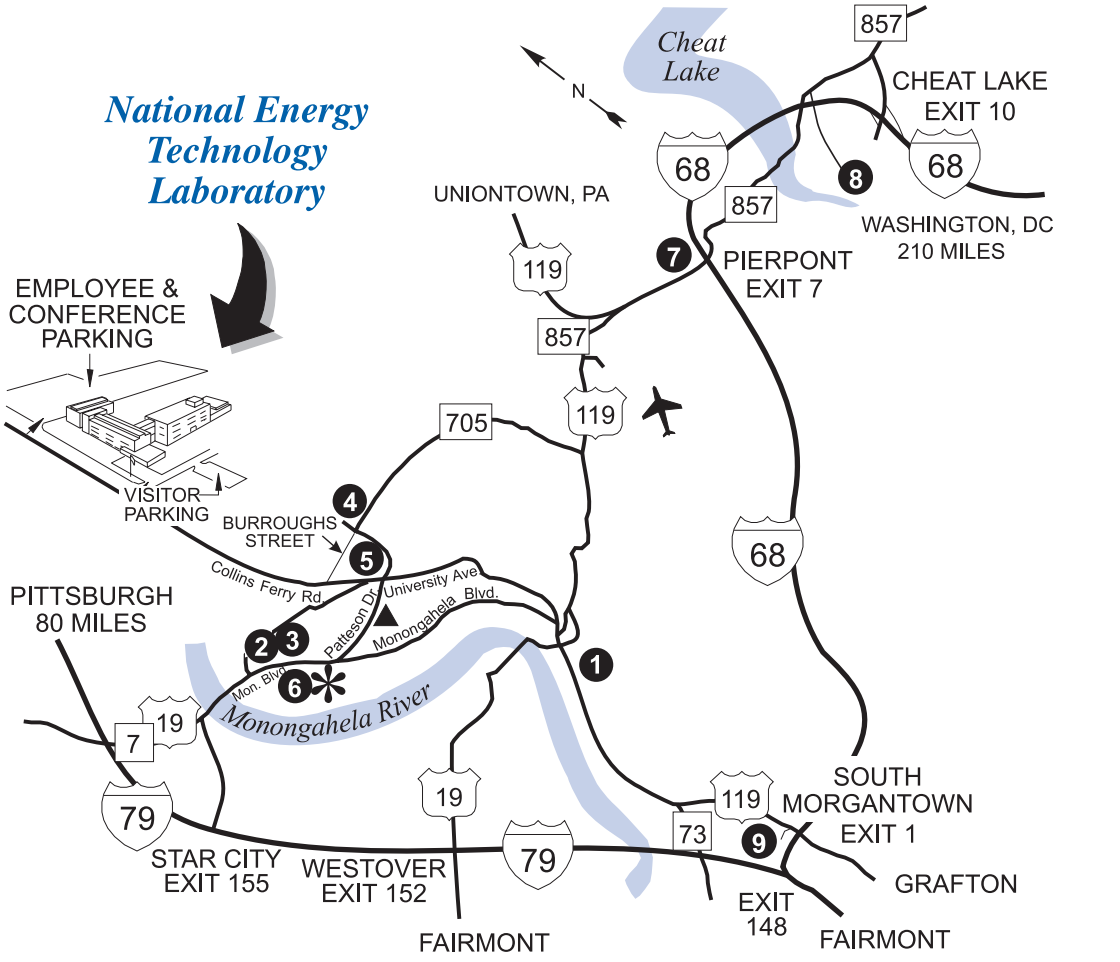
Holiday Inn
1400 Saratoga Avenue
Morgantown, WV 26505
Telephone: 304-599-1680 / 1-800-465-4329
Fax: 304-598-0989
$64.00 Single/Double

Clarion Hotel Morgan
127 High Street
Morgantown, WV 26505
Telephone: 304-292-8200
Fax: 888-241-7944
$66.00 Single/Double
www.clarionhotelmorgan.com

Lakeview Scanticon Resort & Conference Center
One Lakeview Drive
Morgantown, WV 26505
Telephone: 304-594-1111 / 1-800-624-8300
Fax: 304-594-9472
$64.00 Single/Double
www.lakeviewresort.com

WVU's PRT (personal rapid transit); the Creative Arts Center; Woodburn Hall

Directions to NETL and Lodging



Morgantown, WV

▲ Erickson Alumni Center

✻ West Virginia University Coliseum

● LODGING:

1. Clarion Hotel Morgan
2. Days Inn
3. EconoLodge
4. Euro-Suites Hotel
5. Hampton Inn
6. Holiday Inn
7. Holiday Inn Express
8. Lakeview Resort
9. Ramada Inn

Directions to NETL

Morgantown is located approximately 75 miles south of Pittsburgh, a 1-1/2 hour drive from the Pittsburgh International Airport. Travelers should fly into the Pittsburgh International Airport and may then drive to Morgantown or take a commuter flight from Pittsburgh to Morgantown.

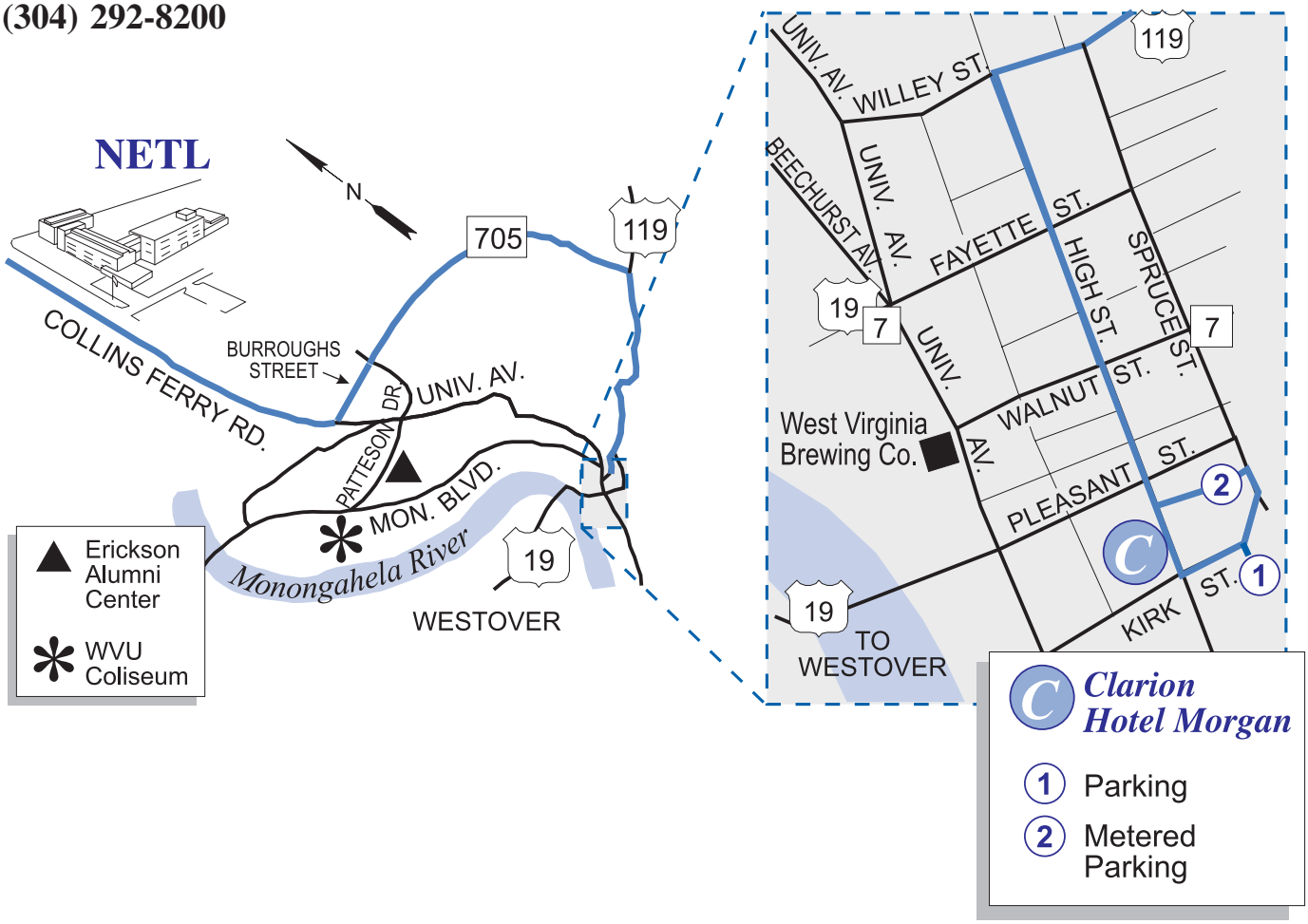
From I-79, exit at the Star City Interchange (Exit 155). Following signs to Star City, bear right at the traffic light onto Rts. 7 and 19 (Monongahela Boulevard). Continue across the bridge and bear into the left lane until you reach a traffic light with the WVU Coliseum on your right. From the left lane, make a left onto Patteson Drive (Rt. 705). Remain in the left lane of Patteson Drive and make a left onto University Avenue at the second traffic light. At the intersection of University Avenue and Collins Ferry Road (a "Y"), veer to the right. Follow Collins Ferry Road until you reach the National Energy Technology Laboratory on the right.

Those traveling from Route 68 should continue to I-79 North, take Exit 155, and follow the directions above.

Directions to Clarion Hotel Morgan

Historic Clarion Hotel Morgan

127 High Street
Morgantown, West Virginia
(304) 292-8200



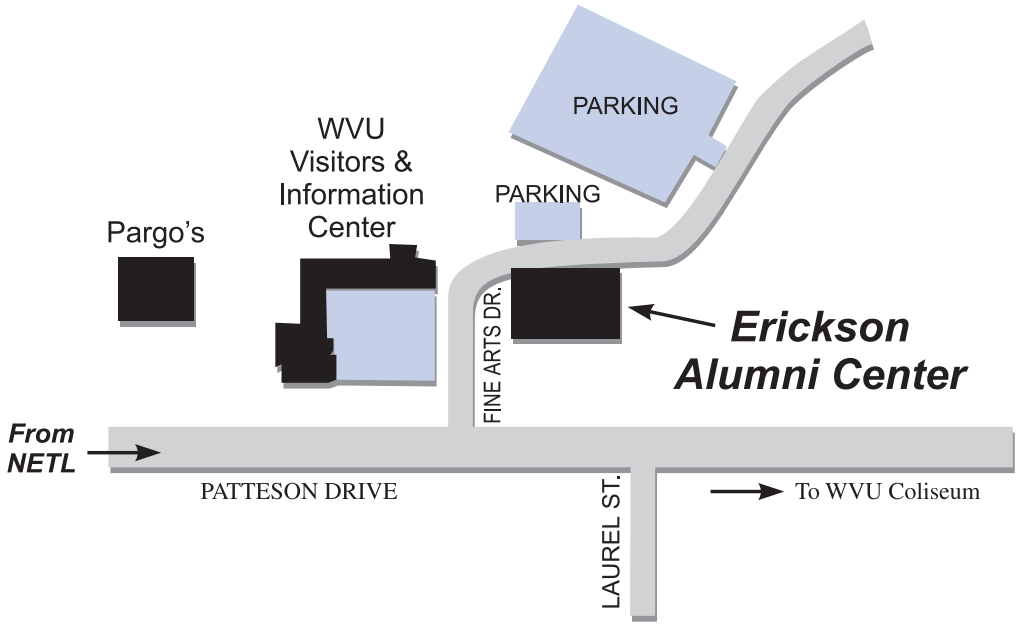
Parking

Two parking lots are available to accommodate Clarion guests:

(1) Immediately after passing the Clarion Hotel Morgan, turn left onto Kirk Street. Hotel Parking will be on the right. If this lot is full, exit lot back onto Kirk Street and continue on around the turn to the parking area mentioned in (2) below.

(2) A metered lot is located immediately at left after passing the Hastings Funeral Home. A parking pass may be obtained from the front desk of the hotel to validate metered parking.

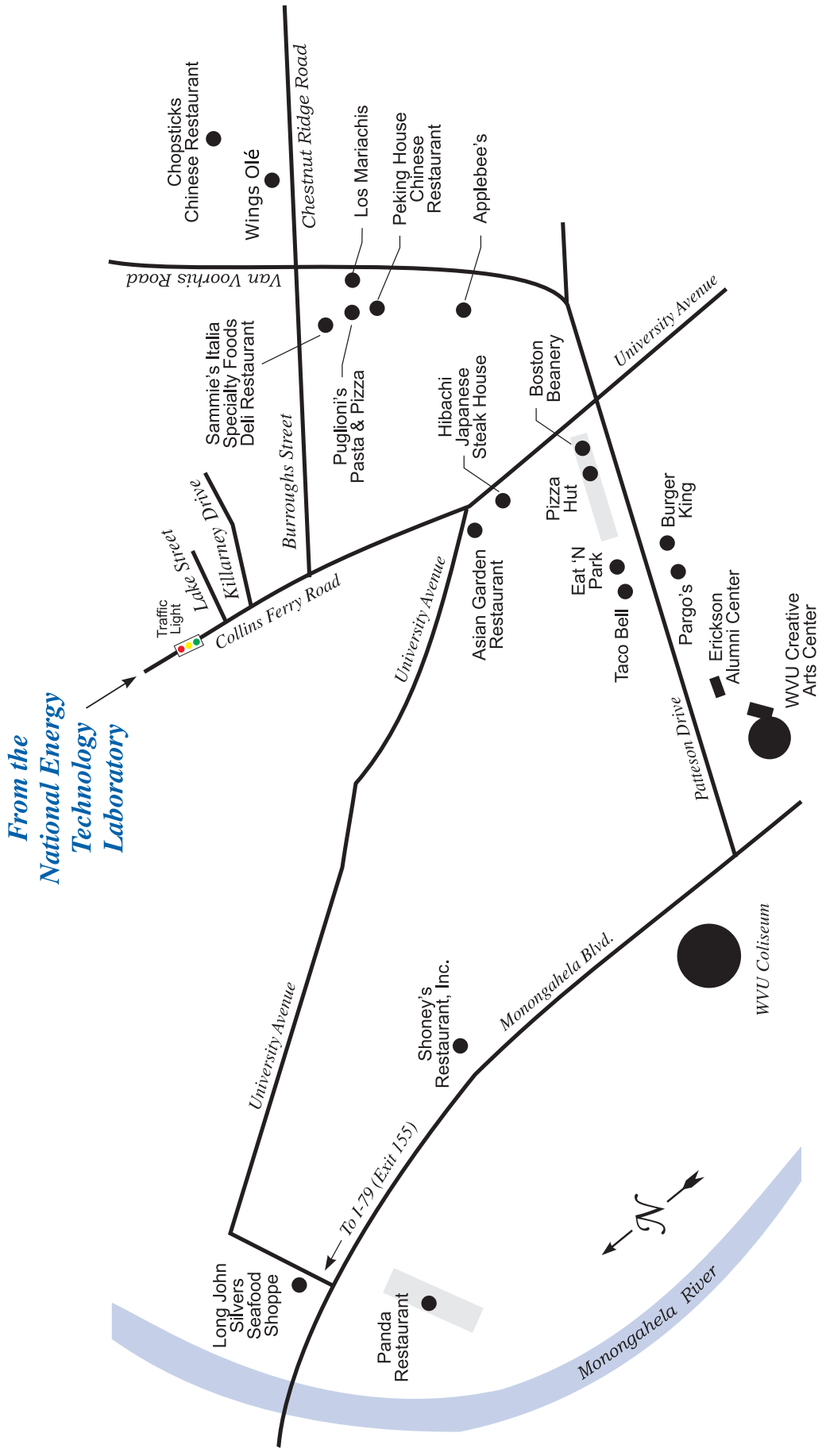
Directions to the West Virginia University Erickson Alumni Center



When leaving NETL's parking lot, turn left, go straight on Collins Ferry Road (through one traffic light) until you reach the "Y." Continue straight onto University Avenue. At the first traffic light, turn right onto Patteson Drive and proceed in the left lane for 3/10 mile. Turn left at the first driveway after Pargo's Restaurant at the WVU Visitors Center sign (Fine Arts Drive). The Alumni Center is located to the right and parking is across the road from the Center (two lots).

Directions to the WVU Erickson Alumni Center

Local Restaurants



Registration Information

Registration Fee: $280 (U.S. Dollars)

The registration fee of $280 includes the cost of a welcome reception on Tuesday evening, September 17; continental breakfast, breaks, and lunch on Wednesday, Thursday, and Friday, September 18-20; an evening reception on Wednesday, September 18; and a dinner on Thursday, September 19.

All attendees, including presenters, must register for the conference. To register, complete the registration form, and if needed, the foreign national visitor's form, and mail or fax them to NETL Event Management.

Payment of the registration fee can be made by check, money order, or credit card. Make your check or money order payable to EG&G Technical Services and attach it to your registration form, or complete the credit card information on the registration form.

Registration fees cannot be refunded after September 6, 2002.

Foreign National Visitor Notice

All foreign nationals who wish to attend DOE sponsored conferences, meetings, workshops, or seminars are required to submit NETL Form F-142.1-2 requesting a DOE unclassified visit. A minimum of 45 days advance notice is required for the review and approval process for unclassified foreign national visits. A foreign national is any person who is not a U.S. citizen and includes permanent resident aliens (PRAs or "green card holder").

NETL supports an active program of unclassified visits by foreign nationals. International cooperation and collaboration is an important element within our programs. NETL is required to ensure that these visits are conducted under prescribed conditions in a manner consistent with the U.S. Department of Energy's policies.

The NETL Foreign National Visitor Form F-142.1-2 is located in the back of this brochure. Please submit the form as soon as possible to NETL Event Management, who will coordinate the process and make approval notification. It is very important that all sections of the form are completed before submittal; it cannot be processed unless all requested information is provided. We recommend that all foreign national visitor forms be submitted by August 1, 2002.

NETL EVENT MANAGEMENT
Phone: 304-285-4750 or 800-553-7681
Fax: 304-285-4459
E-mail: **confserv@netl.doe.gov**
Website: **www.netl.doe.gov**

Registration

5th International Symposium on Gas Cleaning at High Temperature

September 17-20, 2002

(Please Print or Type)

Name _____ _____
First Name Last Name

Affiliation _____

Address _____ MS- _____

City _____ State _____

Zip Code _____ Country _____

Phone Number _____ Fax Number _____

E-Mail Address _____

Do you request vegetarian meals? _____ Yes _____ No

Are you a U.S. Citizen? _____ Yes _____ No

If not, list Citizenship _____

Non-U.S. Citizens wishing to attend the symposium must submit a Request for Foreign National Visit Form (F142.1-2) at least 45 days (August 1) prior to the meeting.

Registration Fee: $280.00 (The registration fee of $280 includes the cost of a welcome reception on Tuesday evening, September 17; continental breakfast, breaks, and lunch on Wednesday, Thursday, and Friday, September 18-20; an evening reception on Wednesday, September 18; and a dinner on Thursday, September 19.)

Registration fees cannot be refunded after September 6, 2002

Make your check or money order for the $280.00 registration fee payable to **EG&G Technical Services** and mail to:

NETL Event Management (A09)
National Energy Technology Laboratory
3610 Collins Ferry Road
P.O. Box 880
Morgantown, WV 26507-0880

or complete the credit card information below and fax to **304-285-4459**.

_____ Visa _____ MasterCard _____ American Express

Credit Card Account Number __ __ __ __ - __ __ __ __ - __ __ __ __ - __ __ __ __

Exp. Date __ __ - __ __ __ __ Signature _____ Date _____

NETL F 142.1-2
(01/2002) OPI=SP20
(Previous Editions Obsolete)

U.S. DEPARTMENT OF ENERGY

Request for Foreign National Unclassified Visit or Assignment

PRIVACY ACT STATEMENT - Collection of the information is authorized pursuant to the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011, and the Department of Energy Organization Act, Pub. L. No. 95-91. The primary purpose of the requested information is to determine unclassified access to facilities operated by the Department of Energy (DOE) or its contractors. Access to the information collected may be provided to appropriate Federal agencies for law enforcement purposes. Collection of the information is mandatory. Failure to provide the information may result in denial of access to DOE or contractor facilities and their personnel.

PART I - PERSONAL DATA

1. Name of Visitor (Family, Given, Middle)

2. Gender of Visitor ☐ Male ☐ Female	3. Place of Birth (City, Country)	4. Date of Birth (MON-DD-YYYY)

5. Country of Citizenship	6. Passport Number	7. Expiration Date (MON-DD-YYYY)

8. Immigrant Alien Yes ☐ No ☐	9. Type of Visa / 9a. Visa No.	10. Expiration Date (MON-DD-YYYY)	11. Work Telephone	12. Fax Number

13. Name and Address of Current Employer	14. Name and Address of Place of Work (if different from 13)
Name:	Name:
Street:	Street:
City: State/Province:	City: State/Province:
Zip Code: Division:	Zip Code: Division:
Country:	Country:
E-Mail Address:	E-Mail Address:

15. Title, Position, or Description of Visitor's or Assignee's Duties

15a. Subject Area of Visit/Assignment

5th International Symposium on Gas Cleaning at High Temperature

Mail, fax or E-mail to:

NETL Event Management, MS-A09
3610 Collins Ferry Road
P.O. Box 880
Morgantown, WV 26507-0880
Fax: 304-285-4459 / E-mail: confserv@netl.doe.gov

Local scenes: clockwise, Kayaker on Big Sandy waterfall; Ruby Memorial Hospital; a PRT stop on the WVU campus; the WVU Recreation Center; Frank Lloyd Wright architecture at Falling Water, Pennsylvania; research at the U.S. Department of Energy's National Energy Technology Laboratory.

Photograph of Fallingwater courtesy of Western Pennsylvania Conservancy. Fallingwater is located in Mill Run, Pennsylvania, telephone 724.329.8501.

Event Management (A09)
U.S. Department of Energy
National Energy Technology Laboratory
3610 Collins Ferry Road
P.O. Box 880
Morgantown, WV 26507-0880

5th International Symposium on Gas Cleaning at High Temperature